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Implicit and Explicit Personality: An Integrative Approach to Predicting Aggressive Behavior in a Field Setting

Brian Christopher Frost
University of Tennessee - Knoxville

To the Graduate Council:

I am submitting herewith a dissertation written by Brian Christopher Frost entitled "Implicit and Explicit Personality: An Integrative Approach to Predicting Aggressive Behavior in a Field Setting." I have examined the final electronic copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Industrial and Organizational Psychology.

Lawrence R. James, Major Professor

We have read this dissertation and recommend its acceptance:

David J. Woehr, Michael D. McIntyre, John Lounsbury

Accepted for the Council:
Dixie L. Thompson

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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Anne Mayhew
Vice Chancellor and Dean of
Graduate Studies

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IMPLICIT AND EXPLICIT PERSONALITY:

AN INTEGRATIVE APPROACH TO PREDICTING AGGRESSIVE BEHAVIOR

IN A FIELD SETTING

Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Brian Christopher Frost

August 2005

DEDICATION

This culmination of my academic achievement is dedicated to my parents, Candy and Tom Frost. This doctoral degree is as much your accolade as it is mine. Thank you for taking pride in my academic pursuits and encouraging me to succeed and push on towards such a monumental goal. I have been able to forge my own path and that has shown to be more valuable than any material possession. Thank you.

"I shall be telling this with a sigh
Somewhere ages and ages hence:
Two roads diverged in a wood, and I—
I took the one less traveled by,
And that has made all the difference."

- Robert Frost

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ABSTRACT

Previous studies of aggressive personality and counterproductive behavior have typically employed only one type of personality measurement, the traditional self-report method, and have rarely attempted to predict naturally occurring behavioral indicators of aggression. This study intended to address both of those issues. Researchers, using multiple measures of other personality domains, have recently shown that explicit and implicit elements of personality interact to predict different forms of theoretically related criteria. This field study explored one of those interactive approaches, an integrative model of personality assessment for aggressive personality. Explicit elements of aggressive personality as assessed by traditional, self-report measures were combined with implicit elements of aggressive personality as assessed by a conditional reasoning measure in an attempt to differentially predict three types of naturally occurring aggressive behavior. The sample consisted of 183 intramural basketball players tracked over the course of a two-month season. The results revealed significant interactions between these two measures in the prediction of overt behaviors, obstructionism behaviors, and expressions of hostility. As expected, the specific nature of these interactions depended on the type of behavior being predicted. These results are discussed in the context of an integrative model for measuring both implicit and explicit aggression to effectively predict and prevent future violence and harassment.

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CHAPTER I

INTRODUCTION

Consider the following recently publicized incidents of aggression in the sports press: a coach confronts and verbally assaults a referee; a coach throws a chair onto the court in frustration; a coach intentionally sends in a 'goon' player to play rough; a coach pushes a referee after a close game. All of these were aggressive responses to the same situational trigger, a sequence of perceived unfair treatment by the referee, but each individual responded in a different manner. Why did each individual differ in the type of behavior chosen? Research has traditionally answered this question by designing instruments to directly assess individual differences in aggressive personality types, such as verbal versus physical aggression tendencies. However, with recent advances in the methodologies for assessing aggressive personality, a deeper explanation to this question might be provided by using an integrative approach to personality assessment. This approach focuses on exploring the dynamics of how self-attributed traits interact with underlying motives and how these relations are manifested into different types of behavior.

Several recent studies have validated the use of traditional, self-report personality measures for predicting reported incidents of aggressive acts (Douglas & Martinko, 2001; Jockin, Arvey, & McGue, 2001; Neuman & Baron, 1998; Skarlicki, Folger, & Tesluk, 1999). Self-report measures are limited though, in that because of the direct nature of the items, respondents are explicitly aware of the targeted construct. As such, these scales only measure individuals' explicit awareness of how others see them and how they want

to be seen (Hogan, Hogan & Roberts, 1996; Hogan & Smither, 2001). The level to which one self-ascribes trait aggression is valuable information, but there is more to the aggressive personality that is below the surface of one's consciousness and cannot be reliably assessed by direct measures (James & Mazerolle, 2002; McClelland, Koestner, & Weinberger, 1989).

Recently, some personality theorists have suggested that defense mechanisms operate unconsciously to shield individuals from the awareness of the true causes of their aggressive actions, the motive to aggress (Bersoff, 1999; Cramer, 2000; James & Mazerolle, 2002; Westen & Gabbard, 1999). Researchers have asserted the importance of assessing these 'implicit' processes through indirect measures that shield conscious awareness of the personality variable of interest (Greenwald & Banaji, 1995; Winter, John, Stewart, Klohnen, & Duncan, 1998). In response to the need for indirect measurements of personality and the recognition that defense mechanisms in the unconscious, known as rationalization biases, could be consciously assessed, James (1998; 2005) developed a measurement system for aggression called conditional reasoning. This system measures the implicit cognitive processes underlying aggressive individuals and has been shown to predict a wide variety of behavioral manifestations of aggression (James & McIntyre, 2000; James et al., 2005).

Both self-report researchers and conditional reasoning researchers have begun to recognize the potential benefit of using both explicit and implicit approaches to fully assess the conscious and unconscious aspects of an individual's personality. McClelland et al (1989) theorized that diverse measures of self-attributed needs (i.e., self-report measures) and implicit needs (i.e., projective measures) assess different facets of an

individual's motivational state and should predict different yet theoretically related types of behaviors within a particular domain. Winter et al. (1998) expanded on this by proposing an integrative model of personality in which explicit traits 'channel' or determine the behavioral manifestations of latent motives. They found support for this proposition by demonstrating a significant interaction between the need for affiliation (implicit) motive and the extraversion-introversion (explicit) trait in the prediction of marital satisfaction criteria. In other words, individuals that possessed the same implicit motive expressed that motive (behaved) differently dependent upon the possession of a particular self-attributed trait.

Researchers have since extended this integrative framework to the construct domain of aggression (Bing, Burroughs, Whanger, Green, & James, 2000; James & Mazerolle, 2002). This integrative model of personality assessment for aggression specifies four aggressive personality types corresponding to high and low levels of both self-reported aggression and implicit aggression as assessed by conditional reasoning methodology (James & Mazerolle, 2002). For each congruous and incongruous implicit motive/self-attributed trait personality type, the model proposes a different form of aggressive response behavior. To date, no published studies have applied this model to the prediction of different forms of aggressive behavior as observed in a real-world setting.

Therefore, with the emergence of conditional reasoning and the integrative model framework, this author sought to assess both conscious and unconscious facets of personality in order to maximize the prediction of a full range of naturally occurring, aggressive behaviors, namely expressions of hostility, obstructionism, and overt

behaviors. Consequently, a secondary purpose of this study was to provide a creative alternative to the poor criterion measures that have historically plagued aggression research. In fact, very few studies in the past decade have attempted to use personality measures of aggression to predict observations of actual aggressive behaviors in a field setting.

CHAPTER II

REVIEW OF THE LITERATURE

Perspectives on Implicit-Explicit Models of Personality

Although measures of implicit motives and self-attributed motives were once viewed as different ways of measuring the same variable (Campbell & Fiske, 1959), researchers have begun to find that these two approaches to personality measurement can serve to predict behavior and explain personality in a collaborative and symbiotic fashion (McClelland et al, 1989; Mischel & Shoda, 1999; Winter et al., 1998). Mischel and Shoda (1999) have attempted to create a unified framework of personality in which 'behavioral dispositions' explained by the Five-Factor Model (i.e., self-reports) are combined with measures of 'unconscious, or implicit, processes' to create a comprehensive theory of personality. The advantage, they argue, is that each approach compensates for the other's faults. Namely, implicit processing approaches ignore personality as it is observed and defined by others' perceptions (i.e., reputations), and self-attributed trait approaches ignore both the complex psychological processes underlying behavioral dispositions (i.e., implicit cognitions) and the complex interplay between the situation and behaviors. In a review of the literature on measurements of implicit and explicit cognitions, Bornstein (2002) explored the findings that, although they predict theoretically related behaviors, these two types of measures correlate only modestly if at all. He concluded that rather than indicating a lack of convergence, these findings reveal "naturally occurring discontinuities" in what is being assessed by the

methods and provide an opportunity to attain a more complete assessment of the personality domain.

In a similar vein, Hogan (1996) has claimed that there are two facets to an individual's personality, the person from the outside and the person from the inside. From this perspective, self-report measures of personality are basically self-presentation scales, or measures of the external (explicit) person. Each item is presented as a statement, and the respondents, fully aware of the variable of interest, are asked to consciously choose to what degree this variable will be ascribed to them. Hogan et al. (1996) have referred to responses to these self-report items as attempts on the individual's part to manage his or her reputation. Thus, these measures give a good indication of how the individual will act in natural interpersonal situations in order to protect that valued reputation. However, in a thorough review, Greenwald and Banaji (1995) noted that a majority of social cognition takes places at an implicit or unconscious level. They claimed that because defense mechanisms exist solely to protect one's implicit self-esteem, knowledge of the personality variable of interest could cause one to inaccurately report their level of that construct. As a result, these direct (explicit) measures oftentimes do not capture the full gamut of influences on one's behavior, especially when that construct has negative connotations.

For instance, a person who explicitly describes himself as agreeable will try to behave in such a way so as to appear agreeable to others. However, what if this person is actually very disagreeable interpersonally, and whether they were consciously not willing to admit it or unconsciously biased to see themselves as socially adept (i.e., unaware of their true demeanor), they rated themselves as agreeable? In a selection situation, this

person may be hired into a job for which a disagreeable personality trait could have serious consequences on the work climate in a particular department. Unnecessary turnover costs and productivity losses might result from a selection decision partially based on only a self-report measure of this construct.

Researchers agree that individuals do willingly distort their responses on self-report personality measures in a socially acceptable direction (Barrick & Mount, 1996; Douglas, McDaniel, & Snell, 1996; Ones, Viswesvaran, & Reiss, 1996; Rosse, Stecher, Miller, & Levin, 1998). Rosse et al. (1998) found that both job applicants and incumbents significantly distorted their scores to look good. Specifically, scales that are typically used to measure aggressive personality were strongly correlated with response distortion scales in both samples (-.51 and -.27 for the Angry/Hostility scale; -.60 and -.54 for the Impulsiveness scale; .48 and .25 for the Compliance scale with low scores having a negative connotation). Although this tendency to engage in socially desirable responding is problematic when trying capture an individual's true personality, it can still provide valuable information when interpreted in the appropriate manner (Hogan et al., 1996, James & Mazerolle, 2002). And, when combined with an indirect measure of implicit cognitions, a more dynamic assessment can be made that has the potential to capture a greater scope of the personality domain of interest.

In terms of predicting behavioral manifestations, McClelland et al. (1989) provided extensive evidence from past research that showed that assessing the strength of both explicit and implicit motives could augment the prediction of behavioral outcomes within a particular personality domain. Specifically, they suggested that these measures are related to different forms of behavior. Implicit motives relate to spontaneous

behavior across multiple situations and settings, and explicit motives relate to behavior in which there is an external social incentive that is salient enough to elicit the behavior. McClelland et al. (1989) found support for this proposition within the need for achievement personality domain. Similar results have been found with other constructs. In particular, Koestner, Weinberger, & McClelland, (1991) demonstrated that combining measures of both implicit and explicit motives in the need for power domain increased the overall accuracy of behavioral prediction.

Bornstein (1998) expanded on these findings with a comprehensive article examining the construct of interpersonal dependency. In consecutive studies, he took large samples of undergraduate psychology students and assessed them on both self-attributed dependency strivings (via self-report measure) and implicit dependency needs (via projective measure). He then cut down each sample by categorizing them into one of four cells corresponding to extreme high and low scores on each measure. Participants were kept in the sample if they had scores on both measure that were either plus or minus one standard deviation from the mean on each scale, respectively. He then assessed these four categories of individuals on help-seeking behaviors. Bornstein demonstrated that implicit and self-attributed dependency strivings interacted to predict different types of help-seeking behavior, namely direct and indirect types. In his conclusion, he pointed to the value of examining "discontinuities" between extreme scores on implicit and self-reported needs and motives in order to predict differential behaviors.

The Integrative Model

Research is still unclear as to how explicit traits and implicit motives relate and manifest into construct-related behavior. A variety of explanations have been proposed

of recent, including the complementary/additive (McClelland et al., 1989), compensatory (Mischel and Schoda, 1999), and "discontinuities" (incongruence) models (Bornstein, 1998) mentioned above. One promising and creative approach is an integrative model of personality measurement based on the "channeling hypothesis" proposed by Winter et al. (1998). These researchers suggest that several individuals might possess the same latent motive but express that motive differently depending on which explicit traits they possess. In measurement terms, the behavioral manifestations of an implicit motive are "channeled" and determined by the level to which a particular trait is self-attributed.

They found support for this model using explicit trait extraversion-introversion and an implicit need for affiliation motive in a longitudinal study conducted on two samples of female college students. Criteria consisted of life outcomes 25 years later, particularly divorce rates and satisfaction ratings with intimate relationships. Results showed that self-attributed trait extraversion-introversion significantly interacted with the expression of a need for affiliation motive in the prediction of these criteria. In particular, individuals with a strong need for affiliation expressed that need in different ways, depending on whether they described themselves as highly introverted or highly extraverted. Individuals with a latent need to affiliate with others and who had characterized themselves as extroverted were typically satisfied with their intimate experiences and experienced low rates of divorce. This was interpreted to be the result of their extraverted interpersonal style being congruent with their need to affiliate with others. But, when affiliation-motivated individuals characterized themselves as introverted, they experienced dissatisfaction in intimate relationships and higher divorce rates in the long run. The researchers theorized that because the self-ascription of being

'quiet' and 'withdrawn' was in direct conflict (not congruent) with the implicit need to affiliate, these individuals had a difficult time expressing and satisfying that implicit need in their relationships. This motive-trait congruence interpretation also explained similar findings for individuals low in the implicit affiliation motive.

These findings were similar to Bornstein's (1998) "discontinuities" (incongruence) explanation. That is, in both studies, congruity/incongruity between implicit personality and explicit personality determined either different behavioral expressions (Bornstein, 1998) or different outcomes related to a particular behavioral style (Winter et al., 1998). This appears to be a promising approach for personality researchers, however, it is important to note that the existence of one correct explicit-implicit personality framework or explanation is not likely. The intricacies of relations between explicit and implicit motives likely depends on the construct of interest, including the limitations of the methodologies used to assess both facets of personality as well as the nature of the criteria being predicted.

Most of the explicit-implicit frameworks, including the integrative model approach, for personality measurement, however, have focused on implicit motives as assessed by projective tests like the Thematic Apperception Test (TAT). Conditional reasoning methodology offers personality researchers a new indirect measure with which to explore this explicit-implicit integrative framework within the domain of aggressive personality.

Conditional Reasoning and Implicit Aggression

Conditional reasoning is a relatively new measurement system that indirectly assesses the underlying, or implicit, cognitive processes that are manifested in a

disposition to behave aggressively (James, 1998; James & Mazerolle, 2002). Simply put, the system is designed to identify the relative strength of an individual's motive to aggress. However, access to this motive is not so simple. Unconscious defense mechanisms work to preserve the conscious perception on the part of aggressive individuals that their behavior is sensible and socially responsible (Bersoff, 1999; Hogan & Smither, 2001; James & Mazerolle, 2002). To access this motive to aggress, conditional reasoning focuses on the degree to which conscious reasoning is impacted by the defense mechanism of rationalization. Specifically, James (1998) purports that self-protective biases unconsciously shape reasoning so that individuals perceive themselves as justified in acting out aggressively. These implicit biases have been termed 'justification mechanisms' and are the cornerstone of conditional reasoning measures. James (1998) has uncovered six justification mechanisms for rationalizing aggressive behavior (i.e., the hostile attribution bias and potency bias to name a few). Essentially, the conditional reasoning system attempts to measure individual tendencies to implicitly rely on these biases in rationalizing motive-gratifying behavior, thereby enhancing the perceived rationality of behaving aggressively rather than prosocially (James, 1998).

Besides the theoretical value of explaining the implicit cognitive processes that underlie behavioral dispositions, the conditional reasoning methodology is much less susceptible to issues of socially desirable response distortion than the self-report measures of aggressive personality (James & McIntyre, 2000; James & Mazerolle, 2002). The reasoning biases, by the very fact that they are implicit and thus inaccessible through direct introspection, are assessed indirectly (Greenwald & Banaji, 1995). Respondents complete inductive reasoning items in which they are asked to determine the most

logically correct conclusion. The items are configured such that one conclusion appears logically appealing to an individual relying on a particular justification mechanism and another conclusion is more logically appealing to a prosocial individual. To the respondents, the demand characteristic appears to be inductive reasoning skills, but their response actually reflects a natural reliance on an implicit assumption about what comprises rational behavior. The result is an assessment of implicit aggressive personality that does not need to be corrected for response distortion or faking.

Validation research on the Justification of Aggression scale (JAGS) of the Conditional Reasoning Test of Aggression (CRT-A; James & McIntyre, 2000) has established the measure as a solid predictor of counterproductive job performance and active and passive indicators of aggression. In particular, it has been shown to correlate with lying, absenteeism, theft, supervisory ratings of poor performance, and physical assault. The average uncorrected validity across eleven studies is .44, ranging from .32 for incidents of attrition in restaurant employees to .55 for undergraduate student conduct violations. Also of important note, correlations between the JAGS and self-report personality measures of aggression have established little to no relationship between the two types of measures (James & Mazerolle, 2002; James et al., 2005).

Present Research Agenda

The Integrative Model of Personality Assessment for Aggression

Drawing from the research of Winter et al. (1998), James and his colleagues have constructed an integrative model of aggressive personality assessment based on measurements from the conditional reasoning method and self-report methods (James & Mazerolle, 2002). Crossing these methods, they created four cells, or personality types,

of extreme scores at the high and low ends of both implicit motives and explicit traits. This section describes the relations under conditions of congruence and incongruence between the two facets of aggressive personality measured by these methods.

Individuals with high levels of both self-attributed aggression and an implicit cognitive readiness to aggress (congruence) were termed Manifest Aggressives. These individuals are explicitly aware of their aggressive nature and either have or want to have a reputation for being aggressive. And, since they are prone to consistently reason that their aggressive actions are justified, they do not see that their actions are wrong. Because of this explicit-implicit congruence, these individuals openly express their motive to aggress and experience little psychological discomfort in doing so. On the other hand, individuals with a significant level of rationalization biases for acting aggressively (high implicit motive to aggress) but who do not view themselves as aggressive have an explicit-implicit incongruence. They were termed Latent Aggressives. Despite presenting themselves to others as non-aggressive, these individuals possess the implicit biases to aggress against others and justify their actions as proper. Additionally, in order to protect their façade that they are not aggressive, Latent Aggressives likely express this latent motive in a subtle manner that they perceive as not being aggressive or directly harmful to a target.

Individuals in the other congruent cell do not view themselves as aggressive and do not have an implicit motive to intentionally harm others. They were termed Prosocials. They do not want to be viewed by others as aggressive, nor do they possess implicit biases to reasonably justify hurting another individual physically or psychologically. Individuals in the final cell have not been conditioned with these

implicit biases either; however, they do describe themselves as aggressive. These individuals, termed Overcompensating Prosocials, want to have a reputation for being aggressive but do not have a cognitive predisposition to rationalize aggressive actions as appropriate. James and his colleagues theorized that under this type of incongruence implicit inhibitory mechanisms would serve to diminish the explicit desire to appear aggressive. These persons were characterized as being uncertain of their own basic motives, and as a result, engage in a high degree of self-monitoring to limit their explicit behavioral desires..

Investigations applying the conditional reasoning methodology and self-report measures have found some support for an integrative model of assessment for aggression (James & Mazerolle, 2002). One study found a significant interaction between conditional reasoning and self-report measures of aggression in predicting truthfulness. Specifically, they found that the ability of explicit aggression to predict individuals falsifying extra credit points for psychology experiment participation was dependent on the presence of implicit biases for rationalizing that behavior. Such that, Manifest Aggressives were the most likely to lie, followed by Latent Aggressives. A second study also found a significant interaction and the same relationship between these two types of measures in predicting peer ratings of deviant behavior in a hospital setting. Both of these studies support the notion that combining self-attributions and implicit motives, as measured by conditional reasoning, enhances the ability for personality measurement to predict aggressive behavior.

However, the integrative model of personality assessment for aggression also suggests that different types of aggressive behaviors are more likely manifested

depending on the specific congruence or incongruence between these two forms of aggressive personality. The two previous studies did not use multiple indicators of aggressive criteria. Therefore, the purpose of this research endeavor is to apply this integrative model to the prediction of different types of aggressive behaviors. This leads us to the criterion issue in aggression research, and the other major purpose of this study.

Behavioral Manifestations of Aggressive Personality

Research using aggression as the criterion is limited by a low base-rate of occurrences. The alternative approaches created in reaction to this problem have often provided only an artificial representation of the actual behavior as it is manifested. According to Murray (1938), the construct of aggression evolves from a motive to fight, to revenge a wrong, to overcome opposition forcefully, and to attack and punish another with the intent to do harm. Typically, aggressive behavior has been operationally defined as any behavior directed toward another individual or targeted entity that is carried out with the intent to cause harm (Anderson & Bushman, 2002; Baron & Richardson, 1994; Folger & Baron; 1996; Robinson & Bennett, 1995). The important distinction here is that, as Tedeschi and Felson (1994) have explained, the intent is the result of the motive. Essentially, solid aggression criteria must capture this 'intent' to harm another individual.

Depending upon one's self-regulatory capacities (taking into account aspects such as situational norms), this motive to aggress manifests itself in a variety of forms (Folger & Baron, 1996). While there appears to be some discourse among researchers as to which specific behaviors fall into which categories, the general consensus is that three categories of aggressive behaviors are covered by this definition: 1) overt (fighting, sabotage, vandalism), 2) hostile expressions (verbal assaults and threats), and 3) passive

expressions or obstructionism (lying, apathy, inefficiency; Neuman & Baron, 1998). All, at some level, are behaviors engaged in to enact physical, financial, or psychological harm on another, and all, regardless of the situation, are, either partially or entirely, manifestations of the individual's motive to aggress (James & Mazerolle, 2002; Murray, 1938; Neuman & Baron, 1998; Skarlicki & Folger, 1997).

Previous research, however, has been ineffective at capturing these acts as they occur naturally. Laboratory validation studies have utilized the delivery of electric shocks to elicit aggressive behaviors (Bushman, 1995; Giancola & Zeichner, 1995; Hammock & Richardson, 1992; Knott, 1970; Parrott & Zeichner, 2002). Physical aggression in these studies has been defined, among other things, as shock intensity, shock duration, and the number of times that the highest level of shock is given relative to the level of other selected shocks. Meanwhile, critics have questioned whether the act of pushing a button to send an electrical shock can be generalized to the kinds of aggressive behaviors that occur in the real world. Considerable debate has transpired over the validity of these techniques as representative of actual 'intentions' to harm another individual (Anderson & Bushman, 1997; Giancola & Chermack, 1998; Tedeschi & Quigley, 1996; 2000). While the specifics of this debate are not within the scope of this paper, we acknowledge the ethical and practical limitations to laboratory studies of aggression.

In applied research, the focus in recent years has been to explore ways to predict and prevent the manifestations of aggressive dispositions in organizations. Assault, sabotage, verbal hostility, lying, insubordination, and absenteeism are all counterproductive to organizations. However, many of these behaviors occur with such

low frequency in most field settings (only 2 physically violent incidents per 1,000 employees occurred yearly from 1993 to 1999; Kondrasuk, Moore, & Wang, 2001) that even the most ambitiously sized research sample would yield minimal results. Verbal hostility and other passive behaviors occur more frequently (Neuman & Baron, 1998) but are rarely tracked as they occur. Therefore, researchers have relied on reported incidents of aggression as the criteria with which to validate their measures in field settings. For instance, the following paper-and-pencil measures have served as the criterion for aggression in recent studies: a thirteen-item scale of incidence of workplace aggression (Douglas & Martinko, 2001), a thirteen-item scale of violence at work (Rogers & Kelloway, 1997), an eleven-item measure of workplace aggression and conflict (Jockin et al., 2001), and a 22-item measure of incidents of employee aggression (Greenberg & Barling, 1999). A significant limitation to the results of this type of research is common method variance. In these situations, a paper-and-pencil measure of an individual's self-attributed personality trait is related to a paper-based measure of self-reported aggressive incidents. This common response frame results in inflated correlations. Furthermore, memory recall errors and fear of future reprimands on the part of the respondent also bring into question the accuracy of these criterion measures (Murphy, 1993). Nevertheless, because of a low base-rate of behaviors, these measures are often the best researchers can do to capture aggressive behaviors in organizational settings.

The focus of the current study is on the prediction of naturally occurring, aggressive behaviors as they have been defined and categorized in Neuman and Baron's (1998) three-factor model. This author suggests that the athletic arena might be a happy medium to solve the practical limitations with laboratory and organizational criteria in

predictive research on aggression. The competitive atmosphere provides a fertile ground in which players often break from the rules of the game and focus aggressive behavior towards a target. Social antecedents to aggression, particularly unfair treatment and frustration-inducing events from both referees and opponents, are commonplace in these environments (Neuman & Baron, 1998). As a result, all three generally accepted forms of aggressive behavior occur more often than in an organizational or other field setting, and they fit under the definition of an ideal aggressive behavior. That is, when one player verbally or physically assaults another player in almost any sport, the intent is usually to harm that individual. Besides boxing, such action is a violation of the rules and results in penalties that counteract the team's efforts to win. This counterproductive impact can be generalized, more so than laboratory behaviors, to the impact of behavioral manifestations of aggression in any organization. Plus, the research participants in these settings are readily available and naturally engage in overt aggression, obstructionism behaviors, and expressions of hostility.

Taking this approach, Bushman and Wells (1998) used the Aggression Questionnaire (Buss & Perry, 1992), a self-report measure, to predict aggressive and non-aggressive penalties during a hockey season. They found that scores on the questionnaire significantly correlated with aggressive penalty minutes (r = .33) and not with non-aggressive penalty minutes (r = .04). While the researchers are to be applauded for their creative approach, we suspect that a sport in which fighting is not as an accepted part of the game might be a better setting for such research.

Hypotheses

Given our discussion of the recent literature, how then should the integrative model of personality assessment for aggression predict different types of aggressive behavior over the course of an intramural basketball season? It was expected that this research agenda would reveal similar predictive relationships to those proposed by the integrative model as described in James and Mazerolle (2002). Applying their work and the work of other explicit-implicit personality researchers, the following propositions were rendered regarding the prediction of the three common types of aggressive behavior: overt, obstructionism, and expressions of hostility.

Hypothesis 1: First, overt aggressive behavior consists of fighting, extreme threats, and other direct harm. Individuals engaging in this direct form of behavior are explicitly aware that it is harmful and if they are to protect their core self-esteem, must have implicit reasoning biases to justify such malicious behavior as proper. Thus, it was predicted that:

a) Both the conditional reasoning measure and the self-report measure will be significantly and positively related to overt aggression behaviors.

And, according to the integrative model of aggressive personality, individuals with an implicit cognitive readiness to aggress who have a congruently high level of self-reported aggression will openly express that motive. Therefore:

b) Self-reported trait aggression will moderate the strength of the predictive relationship between the conditional reasoning measure and overt aggression behaviors such that the relationship will be stronger (more positive slope) when self-reported aggression scores are high (and vice-versa, given a significant relationship between self-reported aggression and overt behaviors).

Hypothesis 2: Obstructionism consists of mostly covert or passive forms of aggression. The covert nature of these behaviors enables the aggressor to conceal his or her intent from the target and others. These behaviors also allow the actor to maintain the illusion that their behavior is not really aggressive. According to the integrative model, individuals with an implicit cognitive readiness to aggress who have an incongruently low level of self-reported aggression will engage in subtle acts of aggression to maintain perceptions of themselves as non-aggressive. Thus, it was predicted that:

a) The conditional reasoning measure will be significantly and positively related to obstructionism behaviors.

b) The self-report measure will not be related to obstructionism behaviors.

c) Self-attributed trait aggression will moderate the strength of the predictive relationship between the conditional reasoning measure and obstructionism behaviors such that the relationship will be stronger when self-reported aggression scores are low.

Hypothesis 3: Predictions of expressions of hostility in this study must take into account the setting in which they are being assessed. Verbal harassment or frustration is common in basketball. It is typically a way for a player to present oneself as threatening to an opponent or intimidate a referee for a perceived 'bad call'. As discussed previously, self-reports are essentially an assessment of an individual's reputation (Hogan, 1996), and in this setting, a socially acceptable approach to present oneself as aggressive or hostile is to act out verbally towards others, thereby maintaining one's reputation. Further, because this type of aggressive behavior is acceptable, it is not as necessary that individuals have cognitive biases in place to rationalize them as such. Consistent with these perspectives, it was predicted that:

a) The self-report measure will be significantly and positively related to expressions of hostility.

b) The conditional reasoning measure will be only modestly related to expressions of hostility.

And, because of the nature of this research setting, the prediction for the integration of these two measures is different from that predicted by the integrative model of aggressive personality. Instead, it is purported that individuals who ascribe high levels of aggression to themselves but who do not have the cognitive predisposition to justify doing harm will engage in actions that appear aggressive but, because of the environmental norms, do not require extensive justification. Therefore:

c) The level of implicit cognitive readiness to aggress will moderate the strength of the relationship between self-reported aggression and expressions of hostility such that the relationship will be stronger when the level of implicit cognitive readiness is low.

Additional Analyses

Additional analyses were conducted to explore whether individuals belonging to particular cells of the integrative model tended to engage in a particular category of behaviors. Based on the integrative model presented in James and Mazerolle (2002) and the rationale presented for the research hypotheses above, the following propositions were explored. A summary of these propositions is presented in Figure 1[1].

- Manifest Aggressives will be more likely to engage in overt behavior than the other aggressive response behaviors;
- Latent Aggressives will be more likely to engage in obstructionism than the other aggressive response behaviors;
- Overcompensating Prosocials will be more likely to engage in expressions of hostility than other aggressive response behaviors.

[1] All figures and tables are presented in the Appendices at the end of the document.

CHAPTER III

METHODOLOGY

Participants

Research participants consisted of male and female intramural basketball players at a large southeastern state university. All of the participants were enrolled as either undergraduate or graduate students at the university. The league was composed of 171 teams playing a five-game regular season schedule, followed by a single-elimination tournament to end the season. Based on game-scheduling logistics and resource limitations, 70 teams were selected for the focus of the study. Of these 70 teams, 36 consented to participate, giving a consent rate of fifty-one percent. Altogether, these 36 consenting teams totaled 227 initial research participants.

Several participants were excluded from this sample because their minimal playing time limited opportunities to observe their behavior. Playing time was coded for either playing more than fifteen minutes (2), less than fifteen minutes (1), or not at all (0) for each player in each 40-minute game. Forty-four participants who failed to meet the minimum threshold of a total score of six on this variable were removed from the initial sample of participants. This resulted in a final sample of 183 research participants. 113 participants were male, and 70 were female. Their ages ranged from 18 to 30 years with a mean of 21.82 years (SD = 2.79). The total number of games played ranged from 3 to 9 with a mean of 4.66 (SD = 1.34). On average, participants had 8.83 years (SD = 5.25) of experience playing the sport of basketball and 14.11 years (SD = 4.53) of experience

performing in team-based sports. Furthermore, the majority, seventy-eight percent, was Caucasian (16% African-American and 6% Other).

Measures of Aggression

At the beginning of the intramural season, the participants responded to the following materials included in the predictor administration packet: (a) a consent form, (b) some demographic questions that inquired about age, education level, basketball experience, and team sports experience, and (c) the following two personality measures.

Measure of Implicit Aggression

The Conditional Reasoning Test of Aggression (CRT-A; James & McIntyre, 2000) was utilized to assess implicit aggression or the presence of cognitive biases that enhance the rational appeal of behaving aggressively. This 25-item measure presents respondents with 22 conditional reasoning problems, plus three actual inductive reasoning problems. Each problem is followed by four choices. Two of these choices for each item are purposely illogical, in that they do not logically follow from the information in the problem. The other two choices offer the respondent a decision between two logical responses, one reflects pro-social reasoning and the other reflects the presence of a justification mechanism (JM) in a respondent's reasoning process. This justification mechanism serves to enhance the rational appeal of the aggressive response over the pro-social response. A respondent who consistently employs these justification mechanisms in reaction to the test items is purported to possess an implicit cognitive readiness to act out aggressively.

For this study, each aggressive answer was scored as a "1", and the other choices were scored as "0." Totaling item scores across all 22 conditional reasoning items

creates a composite score called the Justification of Aggression scale (JAGS). A high score on the JAGS indicates that JM's for aggression are instrumental in guiding and shaping a respondent's reasoning. A low score, on the other hand, indicates that these JM's are not instrumental in shaping the respondent's reasoning about behavior. Thus, individuals with high scores are expected to have a significantly greater probability of engaging in aggressive acts than individuals with low or moderate scores.

The 183 participants in this research endeavor had a mean JAGS score of 3.96, ranging from 0 to 10, and a standard deviation of 2.21 (Table 1). Internal consistency estimate of reliability for the 22-problem CRT-A using a Kuder-Richardson (Formula 20) coefficient was reported in the test manual as .76 for a sample of 1,603 respondents. James et al. (2005) have reported a mean corrected criterion-related validity coefficient across multiple samples at .44.

Measures of Explicit Aggression

The Angry Hostility scale from the NEO Personality Inventory (Revised) (NEO-PI-R; Costa & McCrae, 1992) was enlisted to capture the explicit or self-attributed trait of aggression. All items on each scale of the test are measured on a 5-point range from 1 (*strongly agree*) to 5 (*strongly disagree*). Higher scores on the 8-item Angry Hostility scale are purported to be indicative of an individual's tendency to experience anger and frustration. Representative items include, "I often get angry at the way people treat me" and "I am known as hot-blooded and quick-tempered." In this study, the mean score on this scale was 19.02 with scores ranging from 8 to 37 and a standard deviation of 5.4 (Table 1). Internal consistency is reported in the test manual as a coefficient alpha value of .75 for the Angry Hostility scale. The correlation between this scale and the

Aggression scale on the Personality Research Form (PRF; Jackson, 1967) is reported at .62 ($p < .001$).

Two other scales of the NEO-PI-R have demonstrated moderate convergent validity with other self-report aggression scales and are purported in the test manual to measure trait aggression. While not part of the original hypotheses, these scales were included in the initial stages of the study for exploratory purposes. According to the manual, actual expression of anger also depends on one's level of Agreeableness. Thus, the Compliance scale was used for assessment. An individual scoring low on this scale is described as "aggressive" and willing to express anger when necessary. This scale was reverse scored for this study so that high scores are indicative of individuals low in Compliance. Representative items include, "If I don't like people I let them know it" and "I often get into arguments with my family and co-workers." Research has also demonstrated a significant relationship between the trait of impulsiveness and workplace aggression (Baron & Richardson, 1994); therefore, the Impulsiveness scale was enlisted. High scores on this scale represent an inability to resist urges and engage in behaviors that one may regret later. Representative items comprise, "I am always able to keep my feelings under control" and "I seldom give in to my impulses."

Regarding the psychometrics of these scales, the mean score for the Compliance scale was 23.43 with scores ranging from 7 to 34 and a standard deviation of 4.50, and the mean score for the Impulsiveness scale was 23.37 with scores ranging from 10 to 32 and a standard deviation of 4.44 (Table 1). Internal consistency in the form of coefficient alpha values from the test manual is listed as .59 for the Compliance scale and .70 for the Impulsiveness scale. Past research has demonstrated convergent validity of the

Compliance scale with the Aggression scale of the PRF (-.60, p <.001) and the Verbal Hostility scale of the Buss-Durkee Hostility Inventory (BDHI; Buss & Durkee, 1957; -.63, p < .001). The Impulsiveness scale has been moderately correlated with the Indirect Hostility scale of the BDHI (.43, p < .001).

Predictor Administration

Research participants filled out the consent form, demographic information, and personality measures in a classroom located in the same gym where the intramural league games were played. These test administrations were conducted at times convenient to each team during the week of pre-season games and into the first two weeks of the regular season (each team played only one game per week). It is important to note that, while this was an individual differences study, the recruiting strategy was focused on the entire team for the purpose of obtaining the largest possible sample size. Thus, instead of offering individual incentives for participation, each team was offered a gift certificate (at a popular, college restaurant near the campus) for volunteering to participate, contingent that all the players on the team's roster took part in the study.

Upon entering the classroom, participants were introduced to the study as that of an exploration into the relationship between personality and basketball performance, both individual and team-based. Furthermore, they were told that their participation entailed responding to two surveys and allowing us to track their basketball performance across the season. The CRT-A was referred to as a reasoning test, and the NEO-PI-R scales were referred to as a personality assessment. They were told to read the instructions from the test manuals carefully and respond to all of the items. They were also informed that their participation was voluntary, that they could withdraw from the study at any time

without penalty, and that their responses and subsequent performance criteria would remain confidential and anonymous. After all of the players on a particular team had completed the two personality measures, the demographic questions, and signed the consent form, the team captain was handed the gift certificate and thanked for his team's participation.

Behavioral Criteria

Performance Observations and Observer Training

Although the intramural league tracked some statistics of interest (i.e., technical fouls), they did not track behavioral criteria to the extent and detail necessary for conducting an effective research endeavor. Furthermore, many active and passive aggressive incidents that occur on the basketball court are never called (i.e., penalized) by league officials, especially when one considers the age and experience level of the intramural officials in this setting. In total, there were 28 league referees with an average age of 20.9 (SD = 1.93) and past referee experience ranging from 0 to 10 years (M = 2.64; SD = 2.28). Therefore, upper-level, undergraduate students in psychology were interviewed to assist in tracking behaviors pertinent to this study. Selection was based on years of experience as a referee or coach in competitive basketball and overall grade point average. After interviewing several candidates, three research assistants (two males and one female) were selected to serve as trained observers and receive course credit for their involvement.

For the aforementioned reasons, a behavioral score sheet was created to efficiently record the behaviors of interest. The following criteria were tracked for each research participant: (a) hard fouls, defined as fouls that knocked the opponent to the

ground, (b) number and types of technical fouls, (c) verbal harassment directed towards referees, fans or other players, (d) physical altercations or fighting, and (e) passive-aggressive incidents. Any incident considered an act of aggression (an intent to harm a target either physically or psychologically) was described in a structured sequence in a separate column on the score sheet, regardless of whether or not the incident was penalized by the referees. This structured sequence consisted of: a) designating the trigger as either a referee's call (or lack thereof), an opponent's action, other cause, or none; b) designating the target as either a referee, a specific opponent, other, or none; c) describing the action in sufficient detail.

The three research assistants underwent approximately twelve hours of training in order to serve as observers during the intramural basketball season. Six hours of classroom instruction and discussion involved frame-of-reference training using this score sheet Training sessions focused on: (a) establishing the definition of aggression and how it manifests into behavior in different situations, (b) operationally defining all of the behaviors on the basketball court that could be considered acts of aggression towards a target, including hostile, passive, and overt forms, (c) recording the appropriate behavioral criteria from televised basketball games onto the score sheets, and (d) using the structured sequence to describe critical behaviors. The research assistants also attended a three-hour referee training session conducted by the Director of Intramural Sports and league supervisors to familiarize them with league officials and rules. Lastly, the primary researcher observed and provided feedback to each research assistant as he or she tracked behaviors for games during the pre-season intramural tournament. Each

assistant completed the training when they could demonstrate 90% agreement or better after simultaneously but independently tracking the same game as the primary researcher.

Observation Procedure

Behavioral observations were conducted over the five-game regular season and the post-season tournament. League games were played simultaneously on three different courts in the gymnasium, and each research assistant was assigned to a separate court, rotating each day. Two intramural league referees and an official scorekeeper were in charge of each game. Their court assignments were varied so as not to cover the same team an inordinate number of times. Research assistants sat at the league scorer's table with the official scorekeeper who served as a secondary observer providing interpretation of referee calls and noting incidents that might have been missed. In addition, the primary researcher rotated frequently between the three courts providing supervision and interpretation of critical incidents. Research participants were tracked throughout the entire season by social security numbers that were required by league rules to be listed for each team prior to every game. Following each game, the research assistant signed the score sheet and handed it to the primary researcher to be filed appropriately.

Because only one trained rater actually recorded criterion behaviors in each game, reliability of the performance observations in this study was estimated from a review of the relevant literature. A conservative value of .90 was selected based upon inter-rater reliabilities reported for researcher observations of aggressive behaviors in soccer players (.90; Coulumb & Pfister, 1998), researcher observations of aggressive behaviors in hockey players (.90; Sheldon & Aimar, 2001), and expert observations of the performance elements of ice skaters (.88; Weekley & Gier, 1989).

Dependent Variable Coding

After the data collection, five subject matter experts in personality and aggression research coded the behaviors into the dependent variables of interest. Three advanced doctoral students and two Ph.D.'s (each with a minimum of four years of focus on aggression research topics) were handed a list of 153 behaviors captured during the season and were instructed to classify each one into the category which best fit the behavior. The three categories were expression of hostility, obstructionism, or overt aggression. Each coder was also given guidelines for each category and some descriptive examples of behaviors that fall under each category as reported in Neuman and Baron (1998). These guidelines were:

> A behavior should be classified as an **expression of hostility** if:
> (1) the behavior is primarily verbal or symbolic in nature, except for threats of physical violence; or
> (2) the behavior is a physical act of frustration and not aimed directly at the target person.
> Examples include: physical gestures, facial expressions, verbal criticism or ridicule, and belittling someone else's opinion.
>
> A behavior should be classified as **obstructionism** if:
> (1) the behavior is of a passive or covert nature; or
> (2) the aggressor attempts to conceal his/her intent to harm from the target person; or
> (3) the aggressor intends to impede an individual's ability to perform his or her duties or interfere with a group's ability to meet its' objectives.
> Examples include: refusing target's request, preventing target from completing work or expressing self, intentional work slowdown, and withholding behavior.
>
> A behavior should be classified as **overt aggression** if:
> (1) the behavior is of a physical or active nature; and
> (2) the aggressor's intention to harm the target person is blatant or unconcealed.
> Examples include: physical attacks and extreme verbal threats

In this initial coding step, the expert coders agreed on categorizations for 83% (127) of the behaviors. They then met in a group meeting to discuss and reach consensus on categorizations for the other 26 behaviors. Coders reached consensus on 20 of these behaviors and agreed to remove six behaviors from the study for nebulous descriptions. Similar to previous research findings in other settings, the majority of the behavioral manifestations of aggression in this setting were expressions of hostility (48.3%) followed by overt forms (34%) and then obstructionism behaviors (17.7%).

CHAPTER IV

RESULTS

Data Analysis Overview

This section begins by explaining the construction of the data collected and proceeds to correlational and multiple regression analysis of the hypotheses. Significant interactions from hierarchical moderated regression analyses are plotted in order to observe the moderated relationships and compare them to the integrative model (James & Mazerolle, 2002). The section proceeds with an exploration into the types of behaviors selected by different cell groupings within the integrative model of personality assessment. And, finally, post-hoc analyses are conducted on gender as a potential moderator.

Initial Analyses and Construction of the Data

First, zero-order correlations were computed for all of the variables included in the data collection process. Table 1 contains the means, standard deviations, and Pearson product-moment correlations for these variables. Both of the self-report scales utilized for exploratory purposes, the Impulsiveness and the Compliance scales of the NEO-PI-R, failed to render significant correlations with the dependent variables and were removed from further analysis at this point.

As for the hypothesized dependent variables, despite some improvement in the base rate of aggressive behaviors using this setting, the frequency of critical incidents was still positively skewed ($p < .01$ for all three variables). There were also a few univariate outliers present among the dependent variable data. However, because of the low base

rate of behaviors, these outliers were essential to testing the proposed relationships in our hypotheses and were retained. To reduce the impact of these outliers on our results though, the criterion variables were re-constructed trichotomously for each player. A zero, one, or two represented that particular behavior occurring either never, only once, or more than once, respectively, over the course of the season. Collapsing these variables into three ordered, discrete categories also seemed logical, given that, while all research participants met the minimum threshold for playing time, some individuals advanced further in the end-of-the-season tournament and thus, had more opportunities to exhibit the targeted behaviors. As for the independent variables, both implicit aggression, as measured by the Justification of Aggression scale (JAGS) of the CRT-A and explicit aggression, as measured by the Angry/Hostility scale of the NEO-PI-R, were treated as continuous variables.

With trichotomously scored criteria and continuously scored predictors, polyserial and polychoric correlations were generated in PRELIS 2.50 (Joreskog & Sorbom, 2001). Table 2 presents this polyserial-polychoric mixed matrix. It is worth noting that the polyserial correlation assumes an underlying continuous construct on the criterion, and despite the statistical purposes for collapsing the criteria into three categories in this study, we reasoned that physical fights and verbal disputes vary in purpose and intensity and might be best represented by continuous theoretical constructs in testing the hypotheses. Because PRELIS does not generate significance levels for polyserial-polychoric correlation output, determinations of significance were based on the rationale that the same relationships were significant and of less magnitude in our initial analyses using Pearson product-moment correlations.

Consistent with theoretical assumptions and previous research findings (James & Mazerolle, 2002; James et al., 2005), the JAGS demonstrated a small and non-significant relationship with the Angry/Hostility scale of the NEO-PI-R (r = .06, *ns*) as shown in Table 2. This finding supports the notion that each measure assesses a different facet of the aggressive personality (Bornstein, 2002). To further support this notion, the magnitude and direction of the relations between these aggression measures and behavioral observations of aggression on the basketball court were as expected.

Hypothesis 1: Overt Aggression

The results confirm Hypothesis 1a that overt aggression behaviors would be predicted by scores on both the JAGS (r = .54, p < .01) and the Angry/Hostility scale of the NEO-PI-R (r = .38, p < .01). For exploratory purposes, a one-sided Hotelling's t-test for differences between correlations was conducted and showed that the JAGS predicted overt behaviors to a greater degree than did the self-report measure (t = 2.09, p < .05). Next, the hypothesis based on the integrative model of assessment for aggression was tested using hierarchical moderated regression analysis. Both the JAGS scores and the self-report scale scores were entered in the first step of a multiple regression analysis designed to predict overt aggression behaviors. The last equation entered in this analysis represented the interaction between the conditional reasoning and self-report scales. The presence of a moderated relationship in the prediction of overt behaviors was based on the significance level of incremental variance explained by this unrestricted equation. Given that the dependent variables were slightly skewed, it should be noted that significance tests in multiple regression procedures have been relatively robust to failure of the normal distribution assumption when the n is not small (Cohen & Cohen, 1982).

When regressed on overt behaviors, this analysis revealed a significant increase in variance explained by this interaction term ($\Delta R^2 = .06$, $p < .01$). That is, the strength of the predictive relationship between scores on the JAGS and overt behaviors was dependent on the scores on the Angry/ Hostility scale (and vice-versa). The two slopes in Figure 3 illustrate the nature of this moderated relationship and provide further support for Hypothesis 1b. One slope is based on participants who had high self-report scale scores equal to plus one standard deviation from the sample mean, and the other slope is based on participants who had low self-report scale scores equal to minus one standard deviation from the sample mean. At high levels of self-attributed trait aggression, the JAGS scores were strongly related to overt behaviors, but at low levels of trait aggression, the slope relating overt behaviors to JAGS scores was relatively flat. Further, in accordance with James's integrative model, individuals who scored highly on both the self-report measure and the conditional reasoning measure (i.e., Manifest Aggressives) engaged in the highest mean level of overt aggression. Conversely, those who scored high on the self-report scale but low on the conditional reasoning scale engaged in the lowest mean level of overt aggression. The model R^2 (variance accounted for by regressing both predictors and their interaction term on the dependent variable) was .26. Research on multiple regression has highlighted the robustness of these estimators of the squared multiple correlation to distributions of categorical dependent variables that fail to satisfy the multivariate normality condition (Drasgow & Dorans, 1982).

Hypothesis 2: Obstructionism

In support of Hypotheses 2a and 2b, Table 2 reveals a significant and positive relationship between obstructionism behaviors and the JAGS ($r = .61$, $p < .01$) but a

slightly negative relationship between those behaviors and the NEO-PI-R scale (r = -.16). To test Hypothesis 2c, the hierarchical moderated regression procedure used to test Hypothesis 1 was repeated using obstructionism behaviors as the dependent variable. Again, the interaction term accounted for a significant increase in the portion of variance explained in this variable (ΔR^2 = .03, p < .05). That is, the strength of the predictive relationship between scores on the JAGS and obstructionism behaviors was again dependent on the scores on the Angry/ Hostility scale. The slopes plotted in Figure 4 provide further support for the hypothesis. The slope relating JAGS to obstructionism was larger for low scores on the self-report scale than the slope pertaining to high scores on the self-report scale. Moreover, those who scored high on the JAGS and low on the self-report scale engaged in the highest mean level of obstructionism behaviors. These results conform to the behaviors expected from Latent Aggressives in the integrative model of personality assessment for aggression. The model R^2 for both predictors and the interaction term was .21.

Hypothesis 3: Expressions of Hostility

The results partially confirmed Hypothesis 3a. Expressions of hostility were positively correlated with the NEO-PI-R scale (r = .41, p < .01); however, contrary to Hypothesis 3b, the JAGS was not significantly related to this category of behaviors (r = -.03, *ns*). Additionally, the self-report scale predicted expressions of hostility to a greater degree than did scores on the JAGS (t = 4.64, p < .01). The hierarchical regression analysis revealed a significant increase in the variance explained by including the interaction term between the two scales (ΔR^2 = .04, p < .01) after entering the two main effects. Thus, the strength of the predictive relationship between the self-report

aggression scale and expressions of hostility was dependent on the level of the JAGS scores. Figure 5 illustrates these interactive effects and provides further support for Hypothesis 3c. At low levels of JAGS scores, the self-report scale was strongly related to expressions of hostility, but at high levels of JAGS scores, the slope relating expressions of hostility to self-report scale scores was relatively flat. Specifically, those who had a high self-reported trait aggression and a low implicit readiness to aggress, Overcompensating Prosocials in James's integrative model, engaged in the highest mean expressions of hostility. Those who were low on both scales had the lowest mean expressions of hostility. The model R^2 for both predictors and the interaction term was .14.

Exploratory Analyses

The plots in Figures 3, 4, and 5 indicate that individuals classified as Manifest Aggressives, Latent Aggressives, and Overcompensating Prosocials, per the integrative model, may be engaging in one particular behavior type more than any other. To test this proposition, the data set was re-constructed and a hierarchical multiple regression analysis was conducted. First, a dummy-coded variable called 'behavior type' was created with the values of one, two, or three representing each of the three types of aggressive behavior a participant could engage in. As a result, each participant was represented in three cases, one for each value of the dummy-coded variable, and therefore, the sample size increased three-fold (n = 549). Another variable called 'behavior score' was constructed to account for the number of times the participant engaged in the respective behavior type (none, once, or more than once). Next, scores on the JAGS, scores on the NEO-PI-R scale, the interaction term between the scales, the

dummy-coded behavior type variable, and the two-way interaction terms between each scale and the behavior type variable were entered sequentially into a hierarchical multiple regression analysis to predict the new behavior score variable. The last step (equation) entered into the model after the main effects and two-way interaction terms was the three-way interaction term between the JAGS, the NEO-PI-R scale, and behavior type. This final equation produced a significant increment in the variance explained in behavior scores ($\Delta R^2 = .04$, $p < .01$). In other words, the strength of one scale's ability to moderate the other scale's prediction of aggressive behavior was dependent upon the type of behavior being predicted. This finding supported the exploratory proposition that individuals that could be categorized into one particular cell of the integrative model were more likely to engage in one particular type of behavior than another.

To illustrate this finding, research participants were categorized into one of the four cells presented in the 2x2 table in Figure 1. The splits were set at plus and minus one standard deviation from the sample means for both the self-report and conditional reasoning scales. In other words, participants falling in one of these four cells had extreme scores (+/- one standard deviation) on both scales. Cell means were calculated for each of the four cells on each dependent variable and plotted on the chart in Figure 6. As indicated in our previous analyses, individuals scoring high on both scales (i.e., Manifest Aggressives) had a higher mean level of overt behavior than obstructionism and hostility behaviors. Individuals with high scores on the JAGS and low scores on the self-report scale (i.e., Latent Aggressives) had a higher mean level of obstructionism behaviors. Individuals with low scores on the JAGS and high scores on the self-report scale (i.e., Overcompensating Prosocials) had a higher mean level of expressions of

hostility. And, individuals with low scores on both (i.e., Prosocials) had low mean levels of all three types of behaviors.

Post-Hoc Gender Analyses

Post-hoc analyses examined gender differences in the predictor scales, gender differences in frequency of behavior, and gender as a potential moderator of the significant zero-order relationships already established. Males (M = 4.08, sd = 2.36) and females (M = 3.77, sd = 1.95) did not differ with respect to scores on the JAGS, $t(181)$ = .92, p = .36 . However, with respect to scores on the Angry/Hostility scale of the NEO-PI-R, males (M = 20.04, sd = 5.64) attributed significantly greater levels of aggression to themselves than did females (M = 17.37, sd = 4.57) , $t(181) = 3.34$, $p < .01$. In regards to mean levels of the aggressive behavior variables, only expressions of hostility were significantly different between males and females, with males engaging in those behaviors more frequently, $t(181) = 2.10$, $p = .04$.

To examine gender as a moderator of the significant predictor-criterion relationships, we conducted hierarchical moderated regression analyses in the same manner as before. The last equation entered in the regression analysis represented the interaction between the predictor and gender. Of the four analyses conducted, significant increments in variance explained were found for the predictive relationship between JAGS and overt aggression ($\Delta R^2 = .04$, $p < .01$) and for the predictive relationship between JAGS and obstructionism behaviors ($\Delta R^2 = .02$, $p < .05$). Plots of the interactive effects revealed the relationship between JAGS and overt aggression was stronger for males than for females. That is, the slope for males was highly positive, whereas the slope for females was only slightly positive. Conversely, the relationship between JAGS

and obstructionism was stronger for females than for males. While both slopes were in the positive direction, the one for females was larger.

CHAPTER V

DISCUSSION

Discussion of Results

The present research adds to the small but growing body of literature that conceptualizes personality as a complex process requiring assessment by multiple methods. The results provide substantial empirical support for the theoretical frameworks created by Winter et al. (1998) and James and Mazerolle (2002). The purpose of this study was to apply an integrative approach of personality assessment to the prediction of different, but theoretically related, types of real-world aggressive behaviors. Evidence from this study suggests that conditional reasoning and self-reports are accessing different cognitive processes of aggressive personality. The results also indicate that assessing both implicit and explicit elements of aggressive personality in an integrative manner enhances the prediction of multiple types of aggressive behavior beyond that of each element measured independently. Further, the congruence or incongruence between those elements predicted distinctly different types of behaviors.

In particular, the presence of implicit cognitive biases as assessed by the conditional reasoning measure of aggression was a better predictor of overt aggression behaviors than self-reported aggressive personality. However, this relationship was stronger when self-reported aggressive personality was congruently high. This confirmed the expectation that the presence of both explicit trait aggression and the implicit biases would allow for free expression of the underlying motive to aggress in the form of overt behavior. Individuals of this type, termed Manifest Aggressives, see themselves (and

want others to see them) as aggressive and have the biases in place to rationalize malicious and socially unacceptable behavior as justified and reasonable. In regards to obstructionism behaviors, the presence of these implicit biases was also a much better predictor than self-attributed aggression, but this relationship was stronger when self-reported aggressive personality was incongruently low. As expected, those whose self-described level of aggression was contrary to their cognitive predisposition to justify engaging in aggressive behavior tended to act in a passive-aggressive or obstructive manner. These individuals, termed Latent Aggressives, likely behaved this way because the ambiguous nature of such acts preserves their view of themselves (and how they want to be seen by others) as non-aggressive but still allows expression of their underlying motive. In sum, the results described above are consistent with the theoretical explanations and behavioral predictions in James and Mazerolle's (2002) framework.

The research findings also revealed that while the self-reported element of aggressive personality was a better predictor of expressions of hostility, this relationship was more significant when individuals lacked the implicit cognitive biases to rationalize aggressive actions. This result is contrary to behavioral predictions presented by James and Mazerolle (2002) in their integrative model of assessment for aggression. However, it was not unexpected given that expressing hostility was not outside the social norms of the intramural basketball environment. Individuals do not necessarily need self-protective biases in their rationale to justify behavior that is considered socially acceptable. In fact, some participants in this study willingly admitted that the athletic arena provides them an opportunity to vent frustration stemming from other settings where such behavior would not be acceptable or normative.

Lastly, the current research findings highlight the utility of alternative field settings for capturing aggressive and counterproductive behaviors as they occur naturally. A larger number of behaviors were observed and recorded over the course of two months than could be captured in most field settings over the course of a year. Although some might criticize the generalizability of these findings beyond the athletic playing field, the behaviors observed in this study provide research criteria that directly reflect manifestations of the motive to aggress, defined as intent to harm another individual. Furthermore, the workplace can be quite a competitive arena, and while co-workers aren't physically chasing after a loose ball as in basketball, they are chasing after similar personal and professional goals. Whether that goal is a promotion with monetary rewards or increased attention from supervisors, some level of competition exists. Along the way, those high in implicit or explicit aggression or both will likely manifest their motive to aggress in a different form of behavior from those manifested on the basketball court. Theft, sabotage, intimidation, and absenteeism are just some of the possible behaviors that may result from a perceived injustice. The current findings indicate that, with implicit cognitive biases in place to justify acting out aggressively as a reasonable response to such injustice, one will likely engage in response behaviors that can be detrimental to an organization or group's efforts. And, their explicit self-description appears to impact what type of behavior will likely be chosen.

Limitations

It must be noted though that, while the workplace is a competitive arena, it does not typically become as hostile an environment as does intramural basketball. Research has shown that levels of aggressive behavior can vary depending on the conditions of the

situation (Wright & Mischel, 1987). In this case, the hostile environment might have had an impact on what types of behavior were manifested by the presence of implicit and/or explicit facets of aggressive personality. This is especially true for the findings regarding the impact of self-attributed aggression. According to McClelland et al. (1989), explicit traits predict those types of construct-related behaviors that are salient to the situation. In the setting for this study, individuals could put forth the reputation of being aggressive by expressing hostility. In other settings, this may not be as salient of a behavior. Thus, some of the specific behavioral predictions found in this study may be limited in their generalizability to non-hostile settings.

One other limitation to the current study should be noted. Even with a fairly large sample size and a setting conducive to behavioral manifestations of aggression, there was a relatively low number of individuals with extreme high scores on the conditional reasoning and self-report measures. This, however, is to be expected with any research endeavor that attempts to study aggressive personality and capture ideal aggression criteria. Only around ten percent of the normal population is thought to fall under the category of highly aggressive or volatile. Nevertheless, one plausible reason for such an obstacle in this study is that those possessing an implicit cognitive bias, such as a hostile attribution bias, attributed malevolent intent to the purpose of the research and refused to volunteer their time. In fact, some players even went so far as to refuse to participate with their team, resulting in the their team not receiving the monetary incentive for participation. Additionally, research participation required some initiative on the part of the basketball players and cohesiveness among the team to organize a convenient time for everyone to take part in the test administration. Future research of a similar endeavor

should attempt to build the data collection into the formality of the setting. The result would be a much larger and more representative sample size. One from which the specific behavioral predictions of an integrative model could be more powerfully assessed.

Implications for Practice and Future Research

This research study provides further direction for both applied practitioners and personality researchers, particularly those in the field of aggression. In personnel selection situations, these findings indicate that a practitioner would be most effective at preventing aggressive and counterproductive behavior by enlisting a measure of implicit aggression along with the traditional, self-reported measure of aggression in the screening process. Upwards of 26% of the variance in such behavior was explained by the integrative relationship of the two types of measures in this study. In fact, future research should attempt to replicate these integrative findings in an actual selection situation.

Future research should also continue to explore the predictions of the integrative model of assessment for aggression on aggressive behaviors in other field settings. As mentioned previously, non-hostile settings might reveal different predictive relationships. Additionally, researchers should look to integrating the conditional reasoning measure of aggression with other explicit traits. The congruence or incongruence between implicit biases, as assessed by the conditional reasoning methodology, and explicit forms of other personality constructs might well predict additional counterproductive behaviors. Along the same lines, future research should explore potential moderators of the interactive relationships found here and in similar studies of other constructs. These could come in

the form of gender, situational variables or other explicit personality variables (Thrash & Elliot, 2002).

The dynamic approach to personality assessment presented in this study, integrative modeling of implicit and explicit elements of personality, appears to have a promising future. These results are by no means universal to personality, however. Implicit and explicit elements of other personality constructs may operate in a distinctly different fashion. For aggression researchers though, pairing the conditional reasoning and self-report measures together in a series of future studies will provide an extensive understanding of how they can be best combined to add incrementally to our prediction and prevention of violence and counterproductive behavior across a variety of environments.

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APPENDICES

		Self-reported (explicit) aggression	
		High	**Low**
JAGS score (Implicit)	*High*	Overt	Obstructionism
	Low	Expressions of Hostility	None

Figure 1: Behavioral Predictions Based on Implicit-Explicit Category Membership

Note: Figure partially drawn from James and Mazerolle (2002).

American cars have gotten better in the last 15 years. American car makers started to build better cars when they began to lose business to the Japanese. Many American buyers thought that foreign cars were better made.

Which of the following is the most logical conclusion based on the above?

a) America was the world's largest producer of airplanes 15 years ago.
b) Swedish car makers lost business in America 15 years ago.
c) The Japanese knew more than Americans about building good cars 15 years ago.
d) American car makers built cars to wear out 15 years ago, so they could make a lot of money selling parts.

Figure 2: Illustrative Conditional Reasoning Test of Aggression Item

Table 1: Descriptive Statistics and Zero-Order Correlation Matrix

Variable	1	2	3	4	5	6	7
1. CRT-A	-						
2. NEO-PI-R Hostility	.06	-					
3. NEO-PI-R Impulsive	.03	.52**	-				
4. NEO-PI-R Compliance	.02	.55**	.46**	-			
5. Overt Aggression	.38**	.27**	.04	.11	-		
6. Express Hostility	-.04	.35**	.12	.12	.09	-	
7. Obstructionism	.40**	-.07	-.04	.06	.16*	.01	-
M	*3.96*	*19.02*	*23.37*	*23.43*	*.39*	*.14*	*.27*
SD	*2.21*	*5.40*	*4.15*	*4.50*	*1.04*	*.41*	*.68*

Note: n=183, * $p < .05$, ** $p < .01$

Table 2: Polyserial-Polychoric Mixed Matrix

Variable	1	2	3	4	5
1. CRT-A	-				
2. NEO- Hostility	.06	-			
3. Overt Aggression	.54**	.38**	-		
4. Express Hostility	-.03	.41**	.12	-	
5. Obstructionism	.61**	-.16*	.13	-.04	-

Note: n=183, * $p < .05$, ** $p < .01$

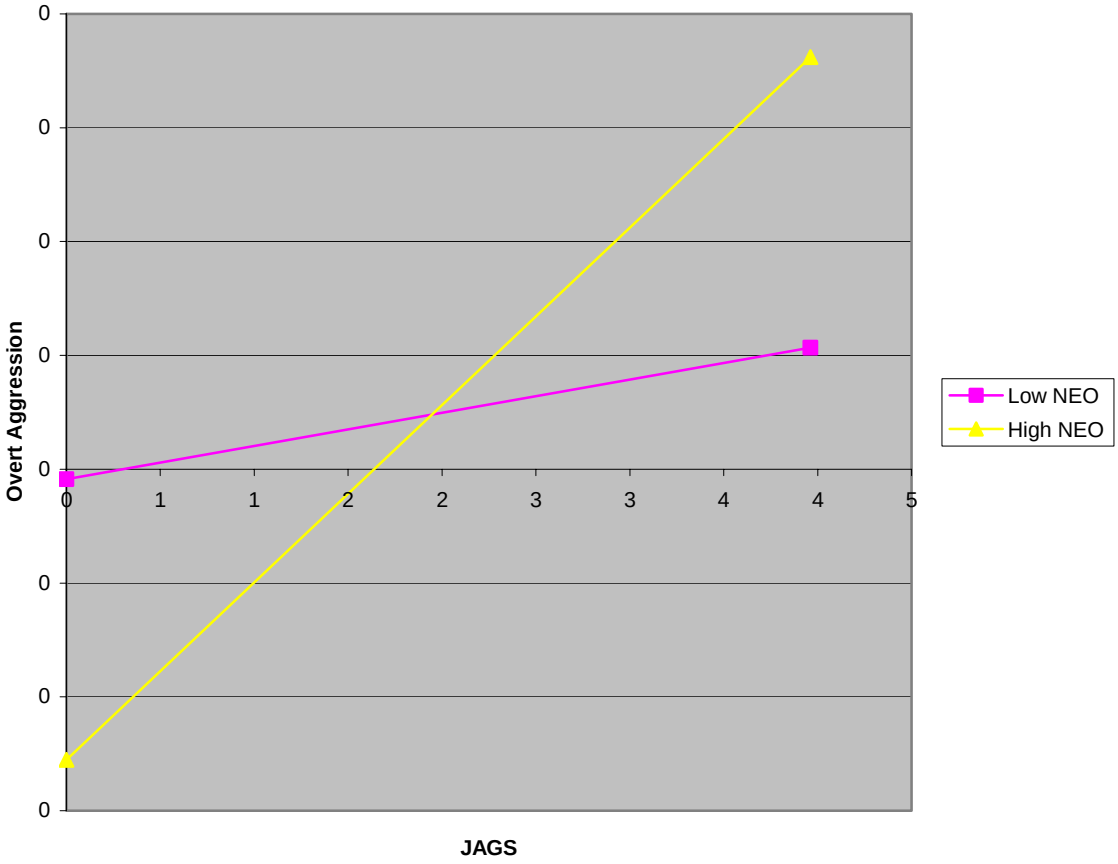

Figure 3: The Moderating Effect of NEO- Hostility Scores on the Relationship Between the JAGS Scores and Overt Aggression

Note: High & Low scores are +/- 1 standard deviation from the sample mean

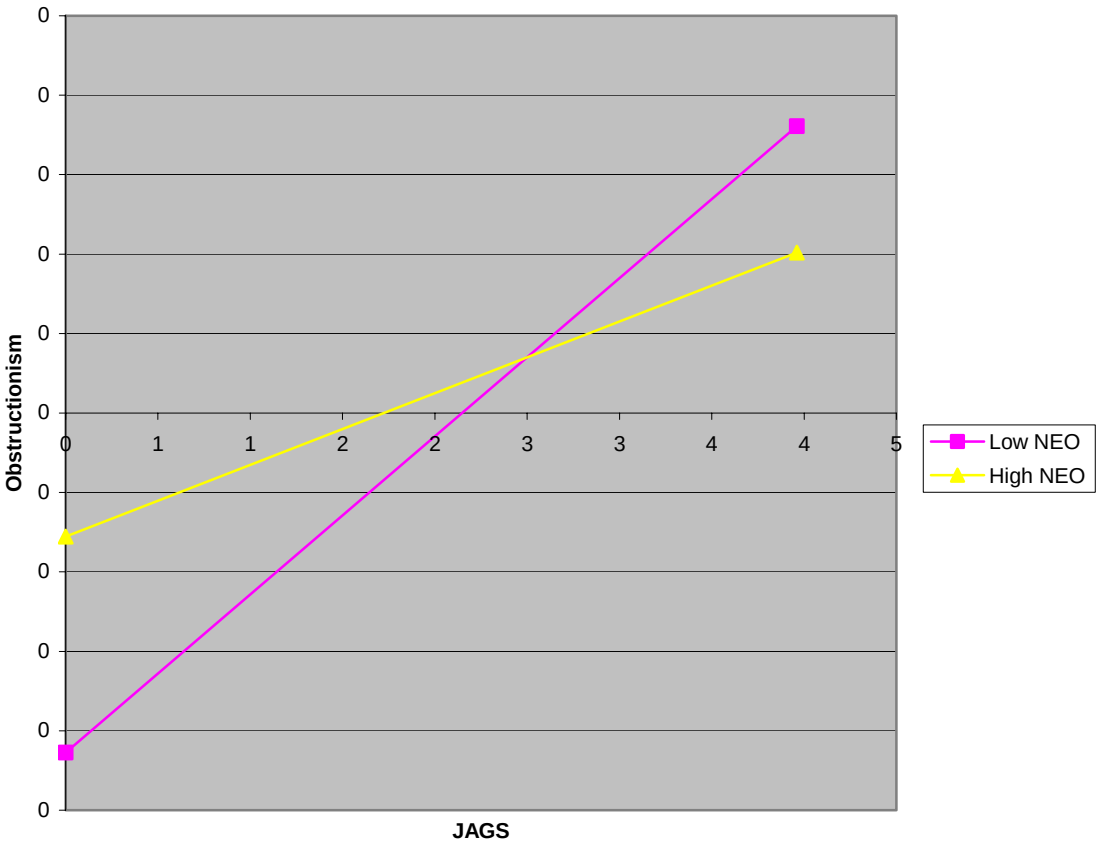

Figure 4: The Moderating Effect of NEO-Hostility Scores on the Relationship Between JAGS Scores and Obstructionism

Note: High & Low scores are +/- 1 standard deviation from the sample mean

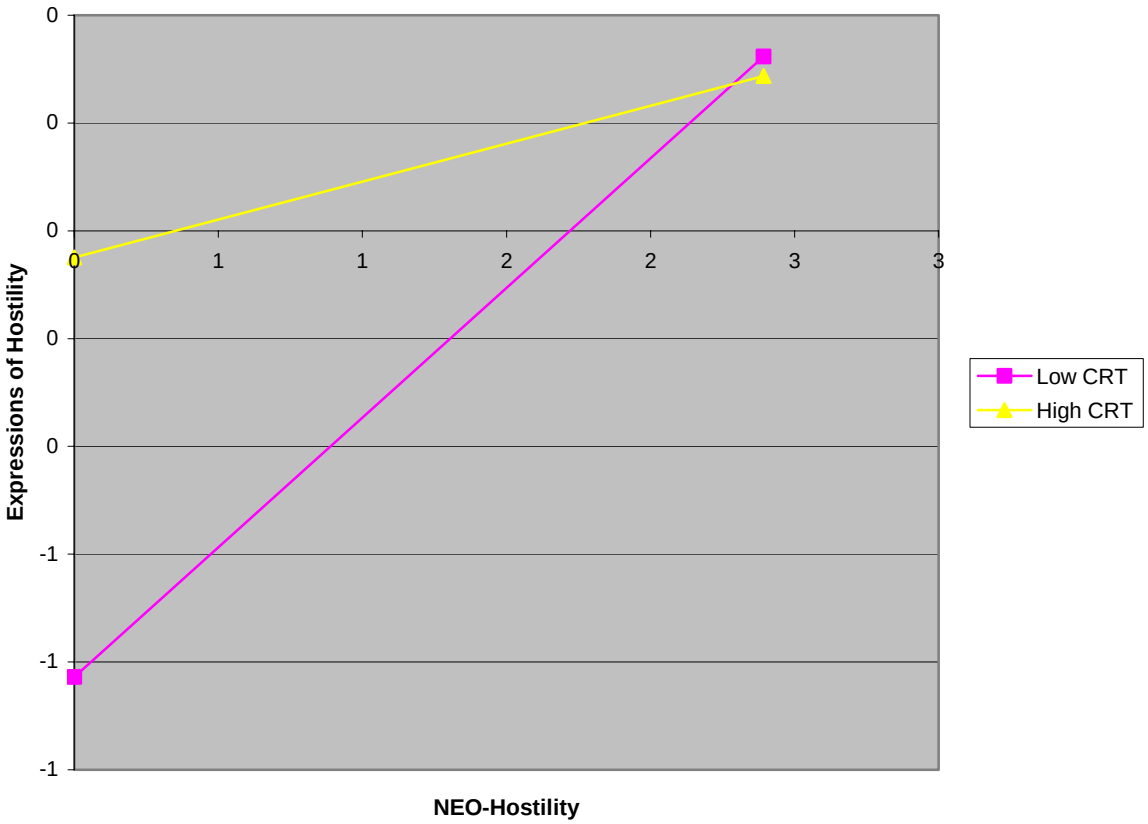

Figure 5: The Moderating Effect of JAGS Scores on the Relationship Between NEO-Hostility Scores and Expressions of Hostility

Note: High & Low scores are +/- 1 standard deviation from the sample mean

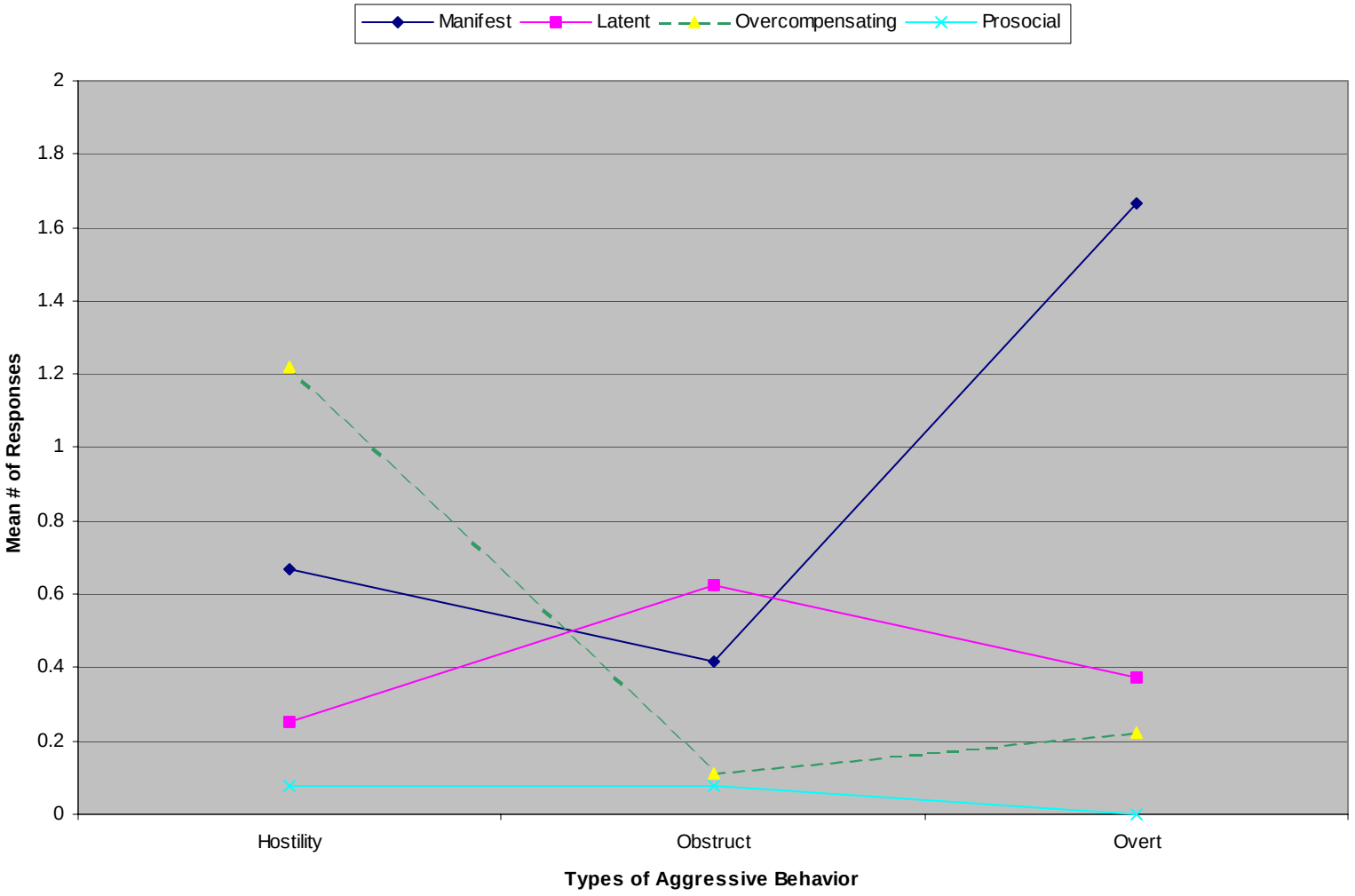

Figure 6: Mean Aggressive Response Behaviors Using Categorized Implicit-Explicit Personality Scores

VITA

Brian Christopher Frost was born on May 31, 1976 in Wheaton, Illinois. He spent nearly his entire youth and grade school days in Plano, Texas where he rose through the ranks of the public school system in west Plano, including a stint at Schimelpfenig Middle School where he spent a significant portion of his three years learning how to spell the school's name. This is also where a very attentive, 7th-grade art teacher recognized Brian's intellectual potential and detail-orientation and nominated him for the school district's accelerated program, PACE. At this point, Brian began a life-long internal battle between nerd and jock. He later attended both Shepton and Plano Senior High Schools where he played on the football, basketball, and track teams. After an untimely but valuable move prior to his senior year, Brian graduated from Lassiter High School in Marietta, Georgia in 1994, with a 4.0 grade-point average and a varsity letter in basketball. Brian then attended The University of Georgia in the best college town in America, Athens. In between parties, road trips, and concerts, Brian managed to graduate Magna Cum Laude with High Honors with a Bachelor of Science degree in May 1998.

After overcoming the disappointment of not being selected in the NBA draft upon his graduation, Brian decided to pursue the ultimate accomplishment in his other strength area, being a student. While maintaining his full commitment to the Red-and-Black, Brian continued his education at the University of Tennessee in Knoxville and eventually earned his doctorate in 2005 from the College of Business with a concentration in Industrial and Organizational Psychology. Among his accomplishments as a graduate-level teacher and researcher, Brian was named the Pilot Oil Chair of Excellence Scholar

and received a $2,500 UT Scholarly Research Grant in 2002. Further, he was nominated as one of five Graduate Teaching Award Finalists for the College of Business in the 2004-05 academic year.

During his five-year and eight-month stint as a graduate student, Brian also served in various 'applied' roles both internal and external to the College of Business. In particular, he served as a facilitator, assessor, and executive coach for the leadership development segment of the ProMBA, Executive MBA, and Physician's Executive MBA programs. He also served as a grant writer and mock interviewer for the Career Services office. Additionally, Brian designed evaluation instruments for both Career Services and the Continuing Education Center at UT. Brian's favorite work was 'waving the wand of Social Darwinism' with an external assessment and consulting group, Tennessee Assessment Center (TAC). Throughout his five years with TAC, Brian served as an assessor, simulation role player, and technical report editor in assessment centers designed to identify and develop managerial talent in various organizations.

Lastly, Brian twice served as the sole instructor for Labor Relations and Collective Bargaining, a senior-level course for undergraduate business majors. Besides terrorizing the future business leaders of America with his liberal ideals, Brian also presented papers at national and state conferences, reviewed papers for the Academy of Human Resource Development International Conferences, and for the most part, maintained active memberships with the Society for Industrial and Organizational Psychology and the Academy of Management. He recently co-authored a journal article in Organizational Research Methods and has two other articles under review. He hopes to learn, experience, and accomplish as much in the next chapter of his life.